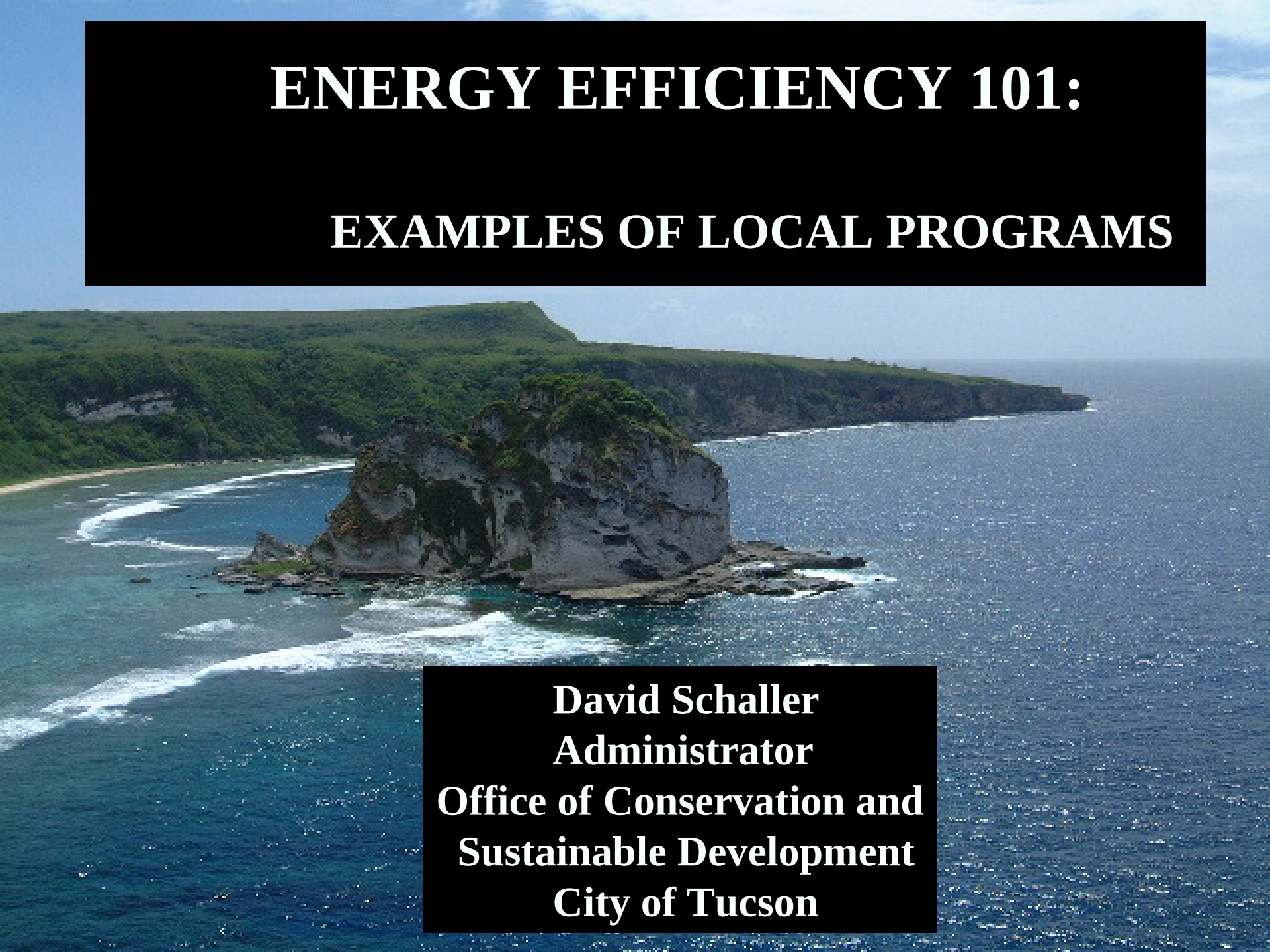
ENERGY EFFICIENCY 101:

EXAMPLES OF LOCAL PROGRAMS



David Schaller
Administrator
Office of Conservation and Sustainable Development
City of Tucson

Energy as the Driver for Everything

- **Basic Health and Human Services**
- **Public Security**
- **Buildings and Materials**
- **Transportation**
- **Economic Development**
- **Education**
- **Food Security**
- **Infrastructure and Capital Improvements**
- **Social Well-Being and Quality of Life**

The Island Context

Sole Dependence on Oil for Electric Power
Captive to World Oil Prices and Supply
Aging Utility Infrastructure
Inefficient Building Infrastructure
Struggling Economies
Government Budget Constraints

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What Does Your Business Plan Assume the Price of Crude Oil to be in Five Years?

Under $60
$60
$70
$80
$90
$100
$150
Above $150

“You never want a serious crisis to go to waste.”

Rahm Emanuel

It is “ an opportunity to do things you think you could not do before.”

Efficiency
Efficiency
Efficiency

It is Cheaper
Than Doing Nothing!

Tucson's Plan for Energy Efficiency Investments: 2009- 2012

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Efficiency

- **Inexpensive**
- **Fast Payback**
- **Long Term Benefits (Security)**
- **Easy**
- **Adds Value**
- **Multiple Co-benefits**
- **The First, Best Choice**

Tucson's Energy Efficiency Approach

- **Sustainable Energy Standard: Civano-inspired**
- **LEED Silver for City Buildings**
- **Traffic Lighting Upgrades**
- **Low-income Housing Upgrades (CDBG)**
- **Weatherization Assistance Program**
- **Commercial Rainwater Harvesting Ordinance**
- **Internal City Energy Efficiency Initiative**
- **Energy Efficiency and Conservation Block Grant**

Energy Efficiency and Conservation Block Grant Program

U.S. DEPARTMENT OF ENERGY

U.S. DEPARTMENT OF ENERGY

- **Authorized in 2007 Energy Act**
- **Funded in 2009 Recovery Bill - ($3.2 B)**
- **Eligible cities share $952 M**
- **Tucson's formula amount - $5,155,300**
- **10% of funding can be used by the City for grant management purposes**
- **14 categories of eligible activities**

DOE Approval Metrics

- **Energy savings per dollar invested**
- **Greenhouse gases reduced**
- **Jobs created or retained**
- **Funds leveraged; partnering/collaboration**
- **Programs extending beyond the life of the grant**

Energy Efficiency Strategy

We will use EECBG funds to:

a) compliment the City's growing renewable energy program with a widespread energy efficiency initiative

b) build upon our existing green building code and land use planning measures

c) strengthen our existing water/energy efficiency programs

d) further capture low-cost energy efficiency gains in City facilities

Energy Efficiency Strategy

e) **extend energy efficiency opportunities to residential and commercial sectors**

f) **support the City's Climate Change and Green Jobs Coalition Initiatives**

g) implement a Green Business Certification Program and provide energy audits in the commercial sector

Highlights of $5.1 Million Strategy and Investment Plan

- **Investment Plan Weighted Toward Community Energy Savings and Job Creation/Retention Benefits**
- **Fast-Payback City Facility Energy Efficiency Upgrades**
- **Necessity of Pooling Savings to Sustain Continued Efficiency Upgrades**
- **A Phased-in Approach to Program & Project Funding**

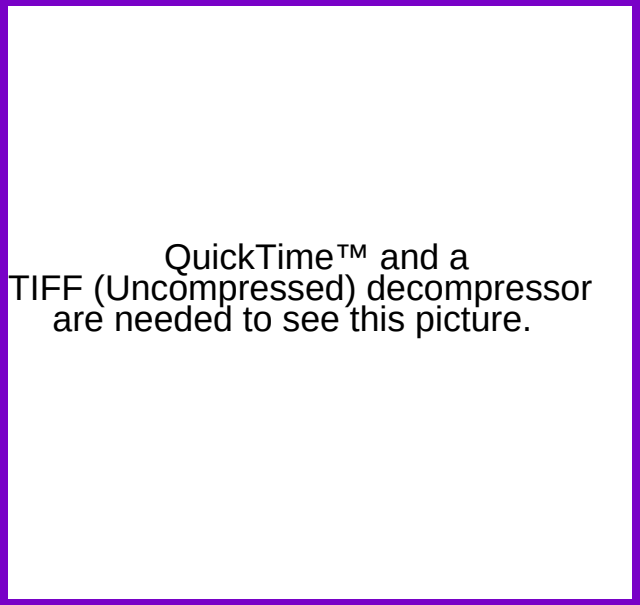
Efficiency Initiatives

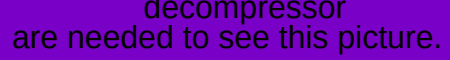
- **Commercial Energy Audits**
- **Grants to Non-profits for Residential Energy Retrofits**
- **Long-Term Community Energy Efficiency Program**
- **City Lighting Upgrades**
- **City Water System Upgrade Upgrades**
- **Information Technology Upgrades**
- **Revolving Efficiency Fund**
- **City Water/Energy Audits**

DEMAND SIDE MANAGEMENT

Demand Side Management

Anything that influences the quantity or patterns of energy use by the end-user





Demand Side Management Approaches

- Shift usage to non-peak times
- Limited utility control over customer equipment
- Awareness and education
- Metering
- Behavior

SMUD
SACRAMENTO MUNICIPAL UTILITY DISTRICT
The Power To Do More.®

Account number: 594860

Home electricity report

bill period ending August 13, 2007

This home energy report is intended to help you understand and reduce your electricity usage and costs. Each month you will see:

- A comparison of your use to your neighbors
- A comparison to your own use last year
- Personalized tips for reducing your cost

We hope this helps you manage your home energy use!

Adam Smith
1400 45th St.
Sacramento, CA 95819

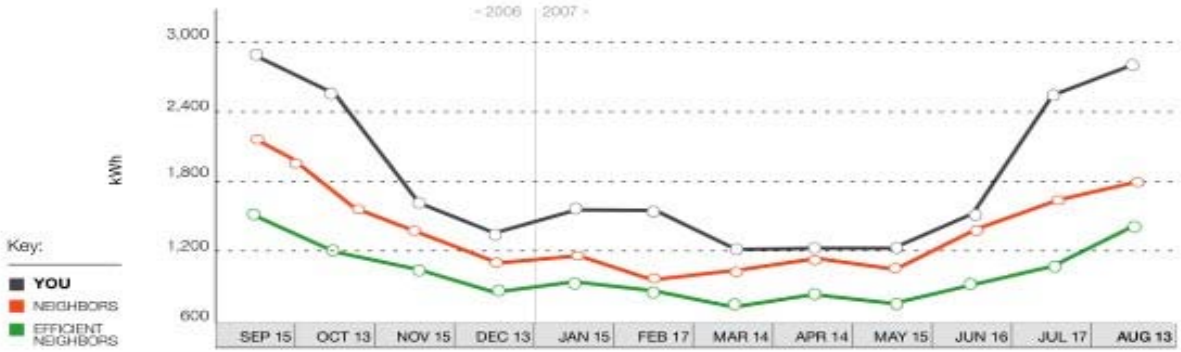
Last Month Neighborhood Comparison

You used **17% MORE** electricity than your neighbors last month.

*A 100-Watt bulb left on for 10 hours uses 1 kilowatt-hour (kWh).

12 Month Neighborhood Comparison

In the last 12 months you used **32% MORE** electricity than your neighbors. This cost you $645.



WHO ARE YOUR "NEIGHBORS"? This report shows how you're doing relative to your neighbors. But you may wonder just who your neighbors are. We've looked at 100 homes nearby and similar in size to yours (averaging 2340 square feet). Your most efficient neighbors are the top 20 homes in terms of energy efficiency.

OVER

The home was 29 years old, single-story, and had a cathedral ceiling with R-11 insulation. The air distribution system was located beneath the floors. The house had single pane windows and R-8 insulation in the walls. It was surrounded by mature trees which shaded the walls and small portions of the roof. The roof was coated with a locally produced acrylic/polymeric white coating. Pre-installation albedo was 18%. This increased to 79% after the coating was installed. Cooling energy savings were 80%, and peak demand reduction was 17%. The roof was revisited in the spring of 1992. A layer of dirt had reduced the albedo somewhat, but a thorough washing brought the albedo up to 73%.

In Sum…

Energy Efficiency is the Smartest Energy Dollar you can spend

Energy Efficiency is a No-Regrets Policy (pocketbook, health, comfort, climate)

Energy Efficiency is a Smart Business Decision

Energy Efficiency = Community Energy Security